Remarks

Claims 1-8 and 31-32 are currently pending in the application. Claims 31-32 are indicated to be allowed.

Claims 1-8 are rejected as indefinite for recitation of various terms. Applicants have amended the claims herein to address these rejections. Claim 1 is amended to delete the gene language deemed to be indefinite in that claim. Claim 1 now recites a DNA molecule that encodes an NADH dependent L-xylulose reductase.

Claims 3 and 6 are amended to delete "functionally equivalent," which was considered vague and indefinite. The function "disclosed to be engendered with the phrase 'the NADH dependent L-xylulose reductase activity of the enzyme with the sequence of SEQ ID NO:2'" (Office Action, page 4, lines 6-9) is the NADH dependent L-xylulose reductase activity, which already is recited in the claims therefore this deletion does not change the claim scope. Applicants also would like to call to the Office's attention paragraph 32 of the specification, which discusses functionally equivalent variants and refers to variants which are capable of carrying out the catalytic function (the NADH dependent L-xylulose reductase activity of the enzyme protein). The claims also are amended to refer to the enzyme and the DNA as "with the sequence of" a SEQ ID NO, as suggested by the Examiner. The claims no longer recite "a sequence of..." Applicants submit that the rejections are overcome and request their withdrawal. If any minor issues remain with respect to issues of indefiniteness, Applicants invite the Examiner to telephone the undersigned.

Claims 1-3 and 6-8 are rejected as anticipated by Legare et al. (Endocrinol. 140(7):3318-3327, 1999; hereinafter "Legare") under 35 U.S.C. §102(b). The Office Action cites Legare as disclosing P34H sperm protein, which assertedly is an L-xylulose reductase and a "functionally equivalent variant" of the enzymes of claims 3 and 6. Applicants would like to point out that the claims under examination recite an NADH dependent L-xylulose reductase and (functionally equivalent) variants that carry out this NADH dependent L-xylulose reductase catalytic activity. The Legare reference does not teach or suggest an NADH dependent L-xylulose reductase. The L-xylulose reductase of Legare is NADPH-dependent, and is known to be so by skilled persons. Applicants attach here a print-out from GeneCards for dicarbonyl/ L-xylulose reductase, also known as P34H (see "Aliases" section). In the section entitled "Gene Function," on page 2 of the printout, the function is described as catalyzing "the NADPH-dependent reduction of ...L-xylulose." (emphasis added).

Applicants therefore submit that the Legare reference does not teach, or even suggest, an NADH-dependent L-xylulose reductase enzyme or a functional equivalent thereof. The Office cannot make out a prima facie case of anticipation against these claims because the cited reference does not teach at least one claim element. There is nothing in Legare which even hints at the NADH-dependent activity of the claims since the enzyme described is a known NADPH-dependent activity. Applicants request the rejection be withdrawn.

Claims 1-8 are rejected as obvious over Legare in view of Dien et al. (App. Biochem. Biotechnol. 57/58:233-240, 1996; hereinafter "Dien"). Legare is again cited for disclosing an L-xylulose reductase equivalent to the claims. Applicants refer

the Office to the discussion above for explanation a to why the Legare enzyme is not equivalent to the NADH-dependent enzyme recited in the claims here. Legare lacks any teaching, suggestion or hint with respect to an NADH-dependent L-xylulose reductase. Dien is cited for teaching that Ambrosiozyma monospora yeast are capable of using pentose sugars. This reference likewise does not contain any teaching or suggestion of an NADH-dependent L-xylulose reductase or even any L-xylulose reductase. This reference therefore does not make up for the deficiencies of Legare's teachings and fair suggestions.

The Office cannot meet the essential criterion of teaching or fairly suggesting each and every claim element because nothing in either cited reference or their combination even refers to the NADH-dependent L-xylulose reductase recited in the claims here. Therefore, the Office cannot make out a prima facie case of obviousness against these claims. Applicants therefore request withdrawal of this rejection.

In summary, the P34H enzyme of Legare does not have the same characteristic or functional activity of the claimed enzyme. It would not have been possible to identify the putative enzyme which the Office asserts without evidence exists in the yeast of Dien using the methods of Legare, which taught an NADPH-dependent enzyme. Nor would the person of skill be motivated to even look for an NADH-dependent enzyme given the teachings of the art, which indicated that NADPH was the required cofactor.

Applicants submit that the present claims are neither anticipated by nor obvious over the cited art. Applicants therefore request reconsideration and allowance of the amended claims.

RESPECTFULLY SUBMITTED,					
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